

Claims

1. A one-piece expandable flat bearing structure formed by at least partially elastically deformable struts which are separated from each other by openings in the bearing structure, wherein the bearing structure can assume at least one compressed condition and at least one expanded condition and has at least one expansion direction,

characterized in that

the bearing structure has anchor regions (14) from which spring struts (12) which are elastically resilient with respect to the anchor regions (14) extend to a resiliently deflectable end of the spring struts, a hinge strut (16) adjoining said end, wherein the spring struts (12) and the hinge struts (16) are of such a configuration and arrangement that the spring struts (12) are initially resiliently deflected transversely to the expansion direction during the transition from the compressed condition to the expanded condition by the folding-over hinge struts (16) and finally spring back, while a respective central axis of the hinge struts (16) is simultaneously pivoted about a hinge axis extending transversely with respect to the bearing structure beyond a reference axis which extends within the bearing structure transversely with respect to the expansion direction and transversely with respect to the hinge axis so that both the compressed condition of the bearing structure and also the expanded condition of the bearing structure is stabilized by a spring action emanating from the spring struts (12).

2. A bearing structure as set forth in claim 1 characterized in that a respective spring strut (12) adjoins both longitudinal ends of a respective hinge strut (16) and said two spring struts (12) are so arranged relative to each other that they exert a moment in the same direction on the hinge strut (16) about the hinge axis.

3. A bearing structure as set forth in claim 2 characterized in that the two spring struts (12) respectively adjoining a hinge strut (16)

are shaped and arranged in point-symmetrical relationship with each other.

4. A bearing structure as set forth in claim 1 characterized in that the bearing structure forms a peripheral wall of a stent (20).

5. A bearing structure as set forth in claim 4 characterized in that the expansion direction extends in the peripheral direction of the stent (20) and the reference axis extends parallel or at a shallow angle to the longitudinal direction of the stent (20) while the hinge axis is oriented approximately radially.

6. A bearing structure as set forth in claim 1 characterized in that it is formed by plastic material.

7. A bearing structure as set forth in claim 1 characterized in that it is formed by a magnesium alloy.

8. A bearing structure as set forth in claim 1 characterized in that it comprises a bioresorbable material.

9. A bearing structure as set forth in claim 1 characterized in that the openings are cut so that the struts (12, 16) are separated from each other by cuts (18).

10. A bearing structure as set forth in claim 9 characterized in that the cuts are of such a configuration as to afford hinge struts (16) which are S-shaped or W-shaped in the compressed condition.

11. A bearing structure as set forth in claim 9 or claim 10 characterized in that the cuts have end regions (22; 24) which are of an expanded configuration to reduce the notch effect.

12. A bearing structure as set forth in claim 1 characterized in that in the proximity of the anchor regions (14) the spring struts (12) are

of a larger cross-sectional area than in the region of their resiliently deflectable ends.

13. A bearing structure as set forth in claim 12 characterized in that the spring struts (12) steadily taper from the anchor regions (14) towards the resiliently deflectable ends.

14. A bearing structure as set forth in claim 1 characterized in that the hinge struts (16) are of a substantially uniform cross-section transversely with respect to their central axis.

15. A bearing structure as set forth in claim 1 characterized in that a transitional region of a cross-section which is reduced in relation to the hinge strut (16) is provided between a respective resiliently deflectable end of a spring strut (12) and the hinge strut (16) adjoining the resiliently deflectable end.